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THREE OBSCURE GENERA OF PONERINE ANTS

BY WILLIAM MORTON WHEELER

The recent discovery by Mr. R. H. Van Zwaluwenburg of two singular species of ponerine ants in Hawaii has induced me to study the genus *Cryptopone*, established by Emery in 1893 for a small Ceylonese worker ant, which he regarded as cospecific with a female specimen described by Motschulsky in 1863 as *Amblyopone (?) testacea*. Emery's description is preceded by the following generic diagnosis:

"WORKER. Clypeus carinate, its anterior border broadly arcuate, acute, edentulous. Mandibles narrow, masticatory border very oblique, 5-toothed. Eyes absent. Frontal laminae short, approximated. Antennae 12-jointed, with 4-jointed club. Thorax with distinct sutures. Peduncle [petiole] of abdomen nodiform, inserted at a third of the height of the anterior surface of the abdomen [postpetiole]. Legs stout, short, with the first tarsal joint much shorter than the tibiae; spurs with long pectination; claws simple.

"Facies that of a *Ponera*, but differing in the insertion of the pedicel [petiole] at about a third of the anterior face of the following abdominal segment [postpetiole], in the mandibles, which have a very oblique masticatory border, and in the antennae, the four last joints of which form a very distinct club. The two former of these characters place this genus near *Trapeziopelta*, from which it differs in its clypeus and antennae. Antennae with a distinct club are also found in *Typhlomyrmex* and *Myopias;* this last genus is unknown to me in nature."

In the ponerine section of the 'Genera Insectorum,' published in 1911, Emery cites five species of *Cryptopone*, four of which had been added since 1893, namely, *fusciceps* Emery (1900), *tenuis* Emery (1900), and *mocsaryi* Szabó (1910), all from New Guinea, and *nicobarensis* Forel (1905) from the Nicobar Islands. In order to include these four species in the genus, Emery had to modify his generic diagnosis, which now reads as follows:

"WORKER: Head relatively short, slightly longer than broad. Anterior border of clypeus straight or well-rounded. Mandibles narrower than in *Ponera*, armed with four or five stout teeth, or with the masticatory border toothless posteriorly and with three teeth anteriorly

(*C. tenuis*). Antennae short and stout, the funiculus ending in a sharply defined 4-jointed club. Eyes vestigial or absent. Otherwise like *Ponera*.

"FEMALE: Winged; eyes and ocelli developed.

"MALE: Unknown.

"TYPE OF THE GENUS: *Cryptopone testacea* Motschulsky.

"GEOGRAPHICAL DISTRIBUTION OF THE SPECIES: Ceylon, Nicobar, New Guinea."

More recently Forel (1912) has described a species, *butteli*, from Sumatra and Java, and Mann (1919) another, *mayri*, with a variety *fuscior*, from the Solomon Islands. This variety I regard as a distinct species and in the present paper add another species, which belongs to the genus *Cryptopone* as defined by Emery in 1911, from Borneo.

It will be seen that Emery's revised diagnosis of *Cryptopone* in the 'Genera Insectorum' is very indefinite compared with his original diagnosis of 1893, and it is easy to trace this to his inclusion of the two species, *tenuis* and *mocsaryi*, the workers of which differ greatly in the structure of their mandibles from the three other species, *testacea*, *fusciceps*, and *nicobarensis*. While I have not seen specimens of any of these five species, those that I have examined show the same dualism of characters, so that I suggest a division of the genus *Cryptopone*, as conceived by Emery in 1911, into two genera, *Cryptopone*, with *testacea* Motschulsky as the genotype, and *Pseudocryptopone*, new genus, for which I select as the genotype *Cryptopone tenuis* Emery. The worker and female of the former genus are characterized mainly by possessing narrow mandibles with five (in *nicobarensis* and *sarawakana*, new species, with six) strong teeth, and in having the middle tibiae very short and conspicuously bristly on their extensor surfaces, while the worker is also distinguished by having the epinotum in profile somewhat lower than the promesonotum, and strongly compressed above and anteriorly so that its base in dorsal view is very distinctly narrowed at the middle of the mesoëpinotal suture, which is always well-developed. In *Pseudocryptopone*, on the other hand, the mandibles of the worker and female are broad and triangular as in *Ponera*, with very distinct internal and masticatory border and the latter toothless on its basal half and furnished with three (or in *mocsaryi* with four) small teeth on its apical half. The middle tibiae are very short as in *Cryptopone*, but their extensor surfaces are not furnished with bristles. In the worker the epinotum is as high as and not much narrower than the promesonotum, parallel-sided above, and not conspicuously compressed anteriorly. The mesoëpinotal suture is usually obsolete.

Emery emphasized the distinctness of the 4-jointed antennal club, but this does not seem to be a good character. In most of the species that I have examined the club, owing to the greater width and length of the seventh funicular joint, might be more aptly described as indistinctly or even distinctly 5-jointed. This is a character of many species of *Ponera*, while in others (e.g., *leae* Forel, *mina* Wheeler, *japonica* Wheeler, *mumfordi* Wheeler) the antennal club is much more sharply 4-jointed than in any of the species of *Cryptopone* or *Pseudocryptopone*. The shape of the head, as described by Emery, is a more satisfactory character. His remark that it is "relatively short, slightly longer than broad," applies to the species of *Cryptopone, sensu stricto*, but not to his *tenuis* nor to Szabó's *mocsaryi*, in both of which the head is fully one-fourth longer than broad. It is quite as long or even longer in the three new species of *Pseudocryptopone* described below.

The two genera seem to me also to have different natural affinities. *Cryptopone, sensu stricto*, is obviously most closely related to the subgenus *Trachymesopus* Emery of the genus *Euponera*, as shown by the shape of the head and the short and bristly middle tibiae, whereas *Pseudocryptopone* is most closely related to *Ponera*. Indeed, I confess my inability to draw a sharp line of demarcation between the two genera. One of the species, *incerta*, new species, which I have assigned to *Pseudocryptopone*, might, with equal propriety, be placed in *Ponera*. Since *Cryptopone* is a clearly defined genus, whereas *Pseudocryptopone* merges into *Ponera*, two courses seem to be open to us: we may regard *Pseudocryptopone*, at least provisionally, as a distinct genus or subgenus of *Ponera*, or we may transfer all the species with mandibles and thorax like *Ponera* to that genus. I have adopted the former course for the following reasons. *Ponera* is now a large and very difficult genus in great need of careful revision. The monographer who undertakes this task will very probably divide it into several subgenera or even genera and his definition of these will automatically determine their relations to *Pseudocryptopone* and therefore its true status and affinities. For the present, I prefer to circumscribe the genus *Cryptopone* more sharply and to recognize a generic category for the species closely related to *C. tenuis*, which, after all, have a habitus distinctly different from that of the typical species of *Ponera*. I have, moreover, ventured to withdraw two of Emery's Papuan species (*selenophora* and *clavicornis*) from the genus *Ponera* and to associate with them a closely related, undescribed species from the Philippines (*oreas*, new species) to form another new genus, *Selenopone*.

The only males that I possess belong to two species of *Cryptopone*,

butteli Forel and *sarawakana*, new species, and are very similar to the males of *Ponera* and *Euponera*. The same is probably true of the unknown males of *Pseudocryptopone* and *Selenopone*. The females of *Cryptopone*, *Ponera* and *Pseudocryptopone* and the males of the two former genera have distinctly hairy eyes. Perhaps a study of the male genitalia in the four genera would yield valuable taxonomic characters, but for this purpose we shall have to await the accumulation of more material than is to be found in any existing collection.

The known geographical range of species assigned to *Cryptopone*, *Pseudocryptopone*, and *Selenopone* in the following pages comprises a zone of islands extending from Ceylon to Hawaii and from the Philippines to New Guinea and the Solomons. The only species that has been taken on the Asiatic continent is *C. testacea*, which Forel records from Malacca, at the tip of the Malay Peninsula.

In their habits the species of *Cryptopone* and *Pseudocryptopone* are evidently very much like the species of *Ponera*, though, perhaps, more hypogaeic. This is indicated by the even greater reduction of the eyes or their complete absence in the workers. According to Mann, the colonies of *C. mayri* and *fuscior* are small and nest under stones. Forel records *C. testacea* as nesting in a termitarium of *Capritermes nemorosus* Silvestri and *C. butteli* as nesting under tussocks of grass. The sexual forms of this species were taken by H. H. Karny at lights in the house. The two Hawaiian species, *Ps. zwaluwenburgi*, new species, and *swezeyi* new species, were taken by Van Zwaluwenburg in the soil of sugar-cane fields.

CRYPTOPONE Emery (emended)

WORKER.—Stature small. Head subrectangular, slightly longer than broad and very slightly narrower in front than behind. Eyes absent in most of the species; when present, vestigial and minute, situated at the anterior fifth of the head. Mandibles narrow, without distinct internal and masticatory borders, furnished with five or six stout, subequal teeth. Clypeus short, narrowly convex and subcarinate in the middle, depressed on the sides, its anterior border straight or feebly rounded. Antennae rather stout; funiculi with joints 2–6 short and transverse, joint 7 slightly longer, and joints 8–11 forming a 4-jointed club, which is decidedly longer and thicker than the remainder of the funiculus. Thorax with both promesonotal and mesoëpinotal sutures very distinct. Promesonotum large, broadly elliptical, slightly depressed dorsally, much broader than the epinotum, from which it is sharply marked off. Base of the epinotum in profile distinctly lower than the promesonotum, laterally compressed in front, with its dorsal surface elongate-ovate and narrowing more or less acutely to its junction with the mesonotum. Petiole nodiform, subcuboidal or subsquamiform, with longitudinal, more or less fenestrate ventral lamina, and inserted on the postpetiole at a point nearly one-third the distance from the ventral to the

dorsal border of its anterior surface. Postpetiole truncate or even somewhat concave anteriorly, posteriorly distinctly marked off from the rather long gastric segments. Legs stout; median pair with conspicuously short tibiae and tarsi, which are beset with short bristles on their extensor surfaces. Sting long and well-developed. Sculpture rather opaque, especially of the head and pronotum, which are always finely and densely punctate. Pilosity and pubescence short, the latter abundant.

FEMALE.—Only slightly larger than the worker. Head very similar, but with distinct ocelli and well-developed, flattened, hairy eyes situated very near the anterior corners.

Epinotum shorter than in the worker, not lower than the more anterior segments, with its base parallel-sided above, not narrowed in front. Petiolar node somewhat more attenuate or anteroposteriorly compressed above than in the worker; remainder of abdomen and appendages very similar. Wings rather long, their membranes dull, finely and abundantly pubescent; venation as in *Ponera*, with long, closed radial cell, two cubital cells and a discoidal cell.

MALE.—Resembling the male of *Ponera*. Scarcely larger than the worker; slender. Eyes very large, hairy, situated at the extreme anterior corners of the head; ocelli large, rather prominent. Mandibles very small, vestigial, edentate. Antennae long and slender; scapes less than twice as long as broad, somewhat longer but of the same width as the first funicular joint; remaining joints more slender, longer, subcylindrical. Mesonotum without notauli but anteriorly with a distinct median groove. Petiolar node with long, convex anterior slope, vertical posterior surface and rounded apex. Remainder of abdomen long and slender; postpetiolar segment not marked off from the gastric segments. Legs slender, the median pair not modified as in the worker and female; all the tibiae with well-developed pectinate spurs. Wings like those of the female.

GENOTYPE.—*Amblyopone* (?) *testacea* Motschulsky.

KEY TO THE WORKERS OF *Cryptopone*

1.—Eyes present; epinotum evenly convex in profile, without distinct base and declivity. Length, 1.6–1.8 mm. New Guinea..... *fusciceps* Emery.
Eyes absent; epinotum distinctly angulate in profile.....2.
2.—Sides of head rather strongly convex; anterior surface of petiolar node straight. Length, 2.5 mm. Ceylon; Malacca..... *testacea* Motschulsky.
Sides of head straight and subparallel or feebly convex; anterior surface of petiolar node distinctly concave.....3.
3.—Head nearly square, with subparallel sides; antennal scapes reaching very nearly to the posterior border of the head; anterior end of basal surface of epinotum contracted to a point at the middle of the mesoëpinotal suture; summit of petiolar node fully three times as broad as long. Length, 2 mm. Sumatra; Java..... *butteli* Forel.
Head longer, with feebly convex sides; antennal scapes shorter; anterior end of basal surface of epinotum less contracted; summit of petiolar node narrower.....4.
4.—Mandibles 6-toothed. Length, 2–2.3 mm. Borneo.... *sarawakana*, new species.
Mandibles 5-toothed.....5.
5.—Summit of petiolar node less than twice as broad as long; color ferruginous, head somewhat darker. Length, 2.5–2.7 mm. Solomon Islands.... *mayri* Mann.

Summit of petiolar node more compressed anteroposteriorly, twice as broad as long. Color dark brown, nearly black. Length, only 2 mm. Solomon Islands..... *fuscior* Mann.

C. nicobarensis Forel, known only from the female, is not included in the table.

Cryptopone testacea (Motschulsky)

Amblyopone (?) *testacea* MOTSCHULSKY, 1863, Bull. Soc. Nat. Moscou, XXXVI, p. 15, ♀.

Cryptopone testacea EMERY, 1893, Ann. Soc. Ent. France, pp. 240, 241, Figs. 3 and 4, ☿. BINGHAM, 1903, 'Fauna Brit. Ind. Hymen.,' II, p. 105, ♀, ☿. EMERY, 1911, Ponerinae, in 'Genera Insect.,' p. 88, ☿, ♀. FOREL, 1913, Zool. Jahrb. Abt. Syst., Bd. 63, p. 10, ☿.

The worker described by Emery was taken by E. Simon at Nawalapitya, Ceylon. Forel possessed specimens of the same caste collected by H. von Buttel-Reepen at Selangor, Malacca, "from an earthy carton termitarium of *Capritermes nemorosus* Silvestri." According to Emery, the worker measures only 2.5 mm., but Motschulsky's female measured 2 lines (5 mm.). Since the known females of other closely allied species are only slightly larger than their workers, Emery's specimen may not belong to Motschulsky's species. In Emery's figure the sides of the head are represented as decidedly convex, the antennal scapes as reaching nearly to the posterior border, the petiolar node as thick and as having a straight anterior surface. In both workers and females of all the other species of *Cryptopone* the head is nearly square and the petiolar node is more subcuboidal in profile, with a distinctly concave anterior surface.

Cryptopone nicobarensis Forel

Cryptopone nicobarensis FOREL, 1905, Ann. Soc. Ent. Belgique, XLIX, p. 166, ♀. EMERY, 1911, Ponerinae, in 'Genera Insect.,' p. 88, ♀.

Forel described this species from a deälated female specimen, labelled "Nicobars," in the Copenhagen Museum, as having six mandibular teeth and 4–5-jointed antennal clubs. The length is given as 3.5 mm. He remarks that "though it is a female, I believe this species to be quite distinct from *testacea* Motschulsky, which is smaller, has a paler color, more abundant pilosity and a differently shaped node and mandibles." This contention may be correct, but it should be noticed that Motschulsky's specimen was not smaller but actually twice as long as Forel's *nicobarensis* female. It is therefore difficult to avoid the suspicion that the latter may be the undescribed female of Emery's "*testacea*" and that his worker may not belong to the same species as Motschulsky's female.

Cryptopone fusciceps Emery

Cryptopone fusciceps Emery, 1900, Termeszet. Füzetek, XXIII, p. 321, Pl. VIII, figs. 19 and 20, ☿, ♀. 1911, Ponerinae, in 'Genera Insect.,' p. 88, ☿ ♀. Mann, 1919, Bull. Mus. Comp. Zoöl., LXIII, pp. 293, 294, ☿.

This species is clearly quite distinct from *testacea*. Both the worker and the female are decidedly smaller, measuring only 1.66–1.75 mm. and 2.5 mm. respectively. The worker differs from those of all the other species of the genus in possessing eyes and in the shape of the epinotum, which is evenly arcuate and not angulate in profile. Its basal surface, as shown in Emery's figure, is less than twice as long as broad and distinctly, but not greatly narrowed anteriorly at the middle of the pronounced mesoëpinotal suture. The petiolar node is as high as its basal length, narrowed above, with concave anterior and nearly straight posterior surface. Seen from above it is broader than long. The color is reddish testaceous, with the head fuscous and the mandibles, scapes, legs, and anal region yellowish testaceous. The head and pronotum are opaque, finely and densely punctate, the epinotum, pleurae, and abdomen shining. The body is covered with very short, dense pubescence and short, sparse hairs, which are most numerous on the abdomen.

The female is more opaque and has stouter antennae, with thicker clubs, than the worker.

The type-specimens were taken at Lemien, New Guinea, by L. Biró.

Cryptopone mayri Mann

Figure 1, *a* to *d*

Cryptopone mayri Mann, 1919, Bull. Mus. Comp. Zoöl., LXIII, pp. 293, 294, ☿ ♀.

This species was described from workers and females taken by Dr. Mann on three of the Solomon Islands (Ysabel, Ugi, and San Cristoval). I have drawn the accompanying figures (Fig. 1, *a* to *d*) from seven workers which he generously contributed. The head is distinctly longer than broad, with evenly but not strongly convex sides and feebly concave posterior border. Eyes absent. Joints 2–7 of the antennal funiculi broader than long but less transverse than in some of the other species. Mesoëpinotal suture stronger and more impressed than the promesonotal. Epinotum in profile distinctly angular though both the base and declivity are sloping; the former about one and one-half times as long as broad; contracted anteriorly; mesopleurae strongly concave in front. Petiole somewhat broader than long, its node rounded-cuboidal, with perpendicular, distinctly concave anterior, and convex and more sloping posterior

surface. Ventrally the petiolar segment depends as a translucent lamina which is deepest anteriorly. The specimens vary from brownish yellow to ferruginous, with somewhat darker head and conspicuously pale or even whitish mesonotum. Length, 2.5–2.75 mm.

According to Mann, the female measures 3 mm. and possesses large, flat, anteriorly situated eyes and small ocelli. The wings, which are as long as the body, are strongly infuscated.

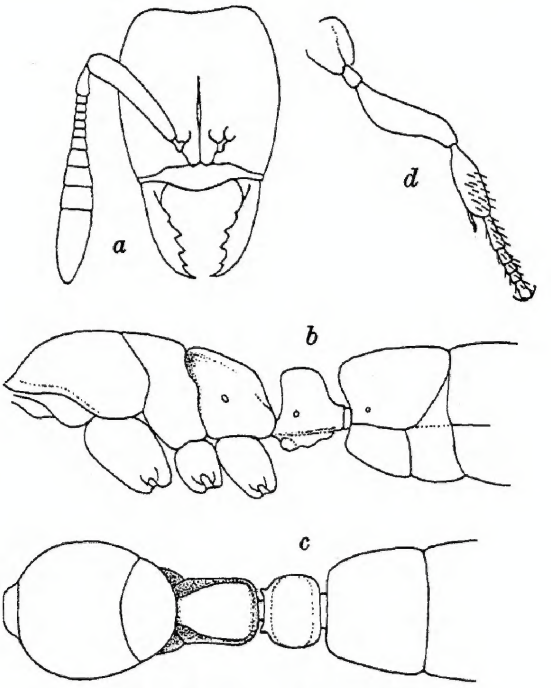

Fig. 1. *Cryptopone mayri* Mann.
a, head of worker, dorsal view; *b*, thorax and pedicel, lateral view; *c*, same, dorsal view; *d*, middle leg.

Cryptopone fuscior Mann

Figure 2, *a* and *b*

Cryptopone mayri var. *fuscior* Mann, 1919, Bull. Mus. Comp. Zoöl., LXIII, p. 294, ♀.

This form was described by Dr. Mann from two workers from Ysabel Island, Solomons. It is also mentioned, apparently by an oversight, as "var. *minor*" in his table on the same page. The cotype which he gave me has unfortunately lost its head, but the small size, nearly black coloration of the body, the shape of the epinotum and petiole show that it represents a distinct species. The base of the epinotum, as shown

in figure 2*b*, is twice as long as broad and distinctly more attenuated where it joins the mesoëpinotal suture than in *mayri*, and the petiolar node is much more compressed dorsally and, when seen from above, nearly twice as broad as long.

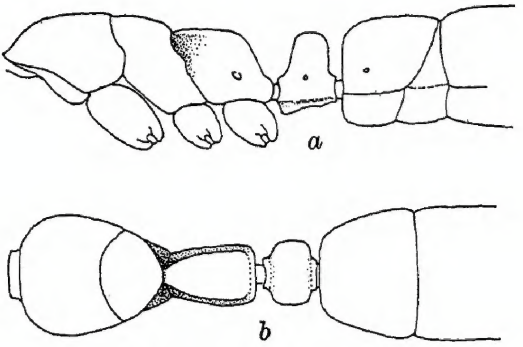

Fig. 2. *Cryptopone fuscior* Mann.
a, thorax and pedicel of worker, lateral view; *b*, same, dorsal view.

Cryptopone butteli Forel

Figure 3, *a* to *c*

Cryptopone butteli Forel, 1912, Zool. Jahrb. Abt. Syst., Suppl. 15, Bd. 1, p. 9, Fig. C, ♀.

Forel described the worker of this species in detail from specimens taken by H. von Buttel-Reepen at Beras Tagi, altitude 4500 feet, Central Sumatra and Buitenzorg, Java. The head is nearly square, only slightly longer than broad, with straight posterior and feebly convex lateral borders. Mandibles 5-toothed, the subapical tooth small. Antennal scapes reaching very nearly to the posterior border of the head. Base of epinotum horizontal, narrowed anteriorly almost to a point at the middle of the mesoëpinotal suture. Petiolar node much compressed, narrowed and somewhat scale-like above in profile with concave anterior and straight posterior surface; its summit in dorsal view fully three times as broad as long.

Sculpture and pubescence much as in the other species; the pilosity very meager, confined to the thorax and petiole. Coloration sordid brownish yellow; gaster somewhat browner; mandibles and appendages more yellow; head somewhat redder than the thorax.

Two females and a defective male taken by H. H. Karny in Buitenzorg, Java, at lights, evidently represent the sexual phases of this species, and are herewith described:

FEMALE (undescribed).—Length, 2.3–2.5 mm.

Head like that of the worker but the sides nearly straight and parallel. Mandibles 5-toothed, the subapical tooth somewhat smaller than the others. Eyes flat, separated by less than half their length from the anterior corners of the head; ocelli distinct, rather widely separated. Clypeus short, subcarinate in the middle, depressed on the sides, its anterior border broadly rounded. Antennal scapes as in the worker. Pronotum rounded anteriorly and laterally, about twice as long as broad; mesonotum small, flat, trapezoidal, nearly as long as broad; epinotum subcuboidal, its base as broad as long, not narrowed anteriorly, shorter than the rather steeply sloping declivity, more rounded at the sides. Petiole like that of the worker, but the posterior surface of the node distinctly concave. Postpetiole somewhat broader behind than long, concave anteriorly at the insertion of the petiole.

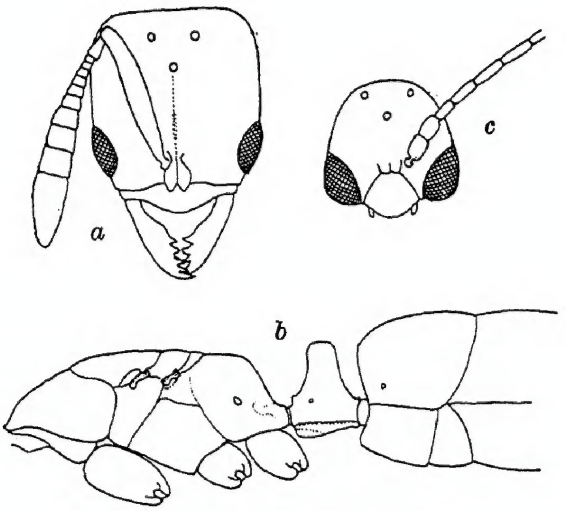

Fig. 3. *Cryptopone butteli* Forel.
a, head of female, dorsal view; *b*, thorax and pedicel, lateral view; *c*, head of male, dorsal view.

Mandibles shining, sparsely and finely punctate; remainder of body opaque or subopaque, except the epinotum, which is distinctly shining. Head densely, remainder of body finely and more superficially punctate.

Pubescence fine, abundant, short and dense as in the worker; hairs short, confined to the clypeus and terminal gastric segments; middle tibiae with numerous short bristles on their extensor surfaces. Eyes hairy. Wing membranes finely and densely pubescent.

Reddish brown; head and gaster somewhat darker; ocellar triangle black; pleurae, clypeus, mandibles, and antennae brownish yellow; legs paler yellow. Wings long, dull, brownish, the veins and pterostigma darker brown; tegulae and wing insertions yellow.

MALE (undescribed).—Length, about 2 mm.

Head through the large and prominent eyes as broad as long, rounded and somewhat narrowed posteriorly. Eyes very close to the anterior corners of the head, so

that the cheeks are extremely short. Ocelli prominent, widely separated. Clypeus convex in the middle, with rounded anterior border. Mandibles very small, vestigial, rounded, edentate. Frontal carinae short and indistinct. Antennal scape only twice as long as broad and closely resembling the first funicular joint in size and shape; remainder of funiculus more slender, its basal joints cylindrical, less than three times as long as broad. Thorax resembling that of the female but narrower, the epinotum shorter and more rounded. Legs slender. Abdomen missing.

Sculpture, pilosity and color much as in the female, but head black and very finely rugulose anteriorly; antennae and mouth parts pale yellow. Wings like those of the female but much shorter.

Cryptopone sarawakana, new species

Figure 4, *a* to *d*

WORKER.—Length, 2–2.3 mm.

Head distinctly longer than broad, nearly as broad in front as behind, with somewhat convex sides and feebly concave posterior border. Eyes absent. Mandibles 6-toothed, the basal and subapical tooth small. Clypeus short, convex and subcarinate in the middle, depressed on the sides, its anterior border broadly rounded. Frontal carinae small, closely approximated; frontal groove distinct as far back as the middle of the head. Antennal scapes somewhat flattened and thickened distally, reaching a little more than their greatest diameter from the posterior border of the head; funicular joints 2–6 small, strongly transverse, the 7th somewhat longer, the 4-jointed club well-developed. Promesonotum large, broadly elliptical, somewhat depressed dorsally; mesoëpinotal suture strongly impressed; epinotum very distinctly lower than the promesonotum; its base horizontal, rounding into the straight, sloping declivity, which is of the same length. Seen from above the base is strongly contracted at its junction with the middle of the mesoëpinotal suture, but less so than in *C. butteli*. Petiole slightly longer than broad, rounded-subrectangular, as broad as the epinotum; its node in profile narrowed above, with rounded summit twice as broad as long, its anterior surface sloping and feebly concave, its posterior surface straight and perpendicular; ventral lamina well-developed, translucent. Postpetiole broader than long, its truncated anterior surface slightly concave at the insertion of the petiole. Legs stout, median tibiae with bristly extensor surface.

Mandibles shining, finely and sparsely punctate. Head opaque and densely, remainder of body subopaque and more finely and sparsely punctate.

Pubescence and pilosity yellow, the former fine and dense as in the other species, the latter short, sparse, confined to the clypeus, mouthparts, epinotum, petiole and terminal gastric segments.

Yellowish brown; head and gastric segments darker brown; antennae and legs sordid yellowish; mandibles either nearly as dark as the head or paler brown like the thorax.

MALE.—Length, 2.2–2.4 mm.

Slender. Head like that of *butteli* but broader, with somewhat larger ocelli; clypeus with a prominent median tubercle near the base and straight, transverse anterior border. There is a deep pit just in front of the anterior ocellus. Antennae longer than in *butteli;* the first funicular joint distinctly shorter than the scape and the remaining joints longer. Mandibles small, vestigial, membranous. Thorax but

slightly broader than the head; mesonotum convex, somewhat broader than long, with a short, median groove anteriorly. Epinotum small and low, rounded, without very distinct base and declivity. Petiolar node lower in profile than in the worker, with straight anterior slope. Gaster and legs long and slender. Wings distinctly longer than in *butteli*.

Subopaque; abdomen more shining; head coarsely, remainder of body more finely punctate.

Pubescence and pilosity as in the worker, but the hairs, though sparse, more uneven and more generally distributed. Eyes hairy; wing membranes densely pubescent.

Piceous brown, appendages slightly paler; head black; wings more infuscated than in *butteli*, with brown veins and pterostigma.

Described from two workers and three males taken by Dr. E. Mjöberg on Mt. Poi, Sarawak, Borneo.

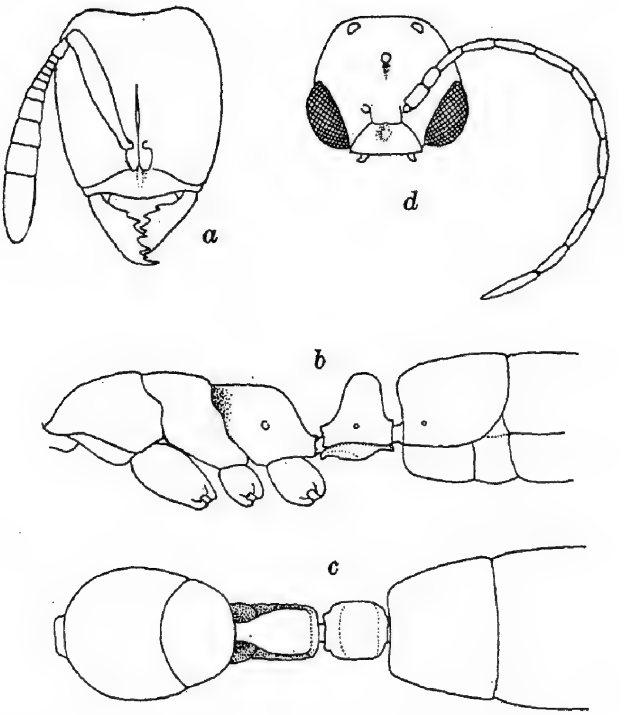

Fig. 4. *Cryptopone sarawakana*, new species.

a, head of worker, dorsal view; *b*, thorax and pedicel, lateral view; *c*, same, dorsal view; *d*, head of male, dorsal view.

PSEUDOCRYPTOPONE, new genus

WORKER.—Closely resembling the worker of *Ponera:* small and slender. Head subrectangular, decidedly longer than in *Cryptopone*. Eyes absent or vestigial and minute, situated near the anterior corners of the head. Mandibles broad, triangular,

with distinct internal and masticatory border, the latter with three or four small teeth on the apical half, the basal half straight and edentate. Clypeus short, convex and subcarinate in the middle, with entire, broadly rounded anterior border. Frontal carinae small, lobular, closely approximated and ciliated; frontal groove distinct. Antennae stout; scapes not reaching to the posterior border of the head; funiculi with thickened, 4-jointed club; joints 4–6 short and transverse. Promesonotum smaller, narrower and more depressed than in *Cryptopone* as compared with the epinotum, the base of which is of the same height, so that the dorsal outline of the thorax is straight and horizontal in profile; mesoëpinotal suture usually less distinct than the promesonotal or absent; epinotum not laterally compressed anteriorly, the sides of the base being subparallel. Petiole nodiform, much as in *Cryptopone*, with the same high insertion on the truncated anterior surface of the postpetiole. Legs stout, median tibiae and tarsi short but not furnished with numerous bristles on their extensor surfaces. Sting long and stout. Sculpture and pilosity much as in *Cryptopone*.

FEMALE (deälated).—Scarcely larger than the worker and very similar, but with distinct ocelli and moderately large, flattened, hairy eyes, situated near the anterior corners of the head. Mesonotum small and flat. Venation of wings unknown but very probably like that of *Ponera* and *Cryptopone*.

MALE.—Unknown.

GENOTYPE.—*Cryptopone tenuis* Emery.

KEY TO THE WORKERS OF *Pseudocryptopone*

1.—Mesoëpinotal suture very distinct, impressed; eyes absent; petiole as long as high, its node not strongly compressed anteroposteriorly; color brownish yellow. Length 2–2.3 mm. Hawaii.....*zwaluwenburgi*, new species.

Mesoëpinotal suture indistinct or obsolete; smaller species.....2.

2.—Eyes absent.....3.

Eyes present.....4.

3.—Head one-fourth longer than broad; mandibles 4-toothed; color ferruginous brown. Length 1.66–1.75 mm. New Guinea.....*tenuis* Emery.

Head one-third longer than broad; mandibles 3-toothed; color brownish yellow. Length only 1.2–1.4 mm. Hawaii.....*swezeyi*, new species.

4.—Antennal scapes reaching only to the posterior third of the head; petiolar node from above rounded-rectangular; color yellow. Length 1–1.2 mm. New Guinea.....*mocsaryi* Szabó.

Antennal scapes longer; petiole higher, with a more anteroposteriorly compressed node, which is distinctly semicircular from above; color reddish brown. Length 1.5 mm. Java.....*incerta*, new species.

Pseudocryptopone tenuis (Emery)

Cryptopone tenuis EMERY, 1900, Termeszet. Füzetek, XXIII p. 321, Pl. VIII, figs. 21, 22, ♀ ♀. EMERY, 1911, Ponerinae, in 'Genera Insect.,' p. 88, ♀ ♀.

Emery gives figures and a rather brief description of this form, which was taken by L. Biró on Tamara Island, Lemien, New Guinea. The worker measures 1.66–1.75 mm.; the female 2.25 mm. The head of the former is about one-fourth longer than broad; the mandibles with

four teeth anteriorly. Eyes absent. Dorsal outline of thorax in profile straight and horizontal; base of epinotum parallel-sided; mesoëpinotal suture obsolete. Petiole as long as broad but higher than long, the node in profile slightly attenuate above, with straight anterior, posterior, and superior surfaces. Sculpture and pubescence as in *Cryptopone fusciceps* Emery, color a little darker.

Pseudocryptopone mocsaryi (Szabó)

Cryptopone mocsaryi Szabó, 1910, Rovartani Lapok, XVII, p. 186, Fig. 1, ♀. Emery, 1911, Ponerinae, in 'Genera Insect.,' p. 88, ♀.

Worker (after Szabó).—"Yellow, slightly shining; antennae, mandibles and legs paler. Head densely, thorax more sparsely punctate. Body densely and finely pubescent; clypeal border ciliate; abdomen pilose posteriorly. Head elongate, about one-fourth longer than broad; slightly narrowed anteriorly, truncate posteriorly, with rounded posterior corners. Eyes minute, situated at the anterior fifth of the sides of the head. Mandibles short, with three larger teeth at the apex, posteriorly with obtuse denticles. Antennal scape short, extending back about two-thirds the length of the head; funiculus slender at the base, with the joints preceding the 4-jointed and strongly incrassate club very short. Thoracic dorsum nearly straight; pronotum rounded, seen from above scarcely narrowed in the region of the mesoëpinotal suture [which is absent]; epinotum with a distinct angle between the base and declivity, the latter slightly sinuous. Petiolar scale scarcely attenuate above, its anterior and posterior surfaces subparallel. Postpetiolar segment of abdomen slightly concave anteriorly. Length, 1–1.2 mm.

"Closely related to *C. tenuis* Emery, but differing in the smaller size of the body, shorter antennal scape and the slightly concave anterior surface of the postpetiolar segment."

The type specimen was collected by L. Biró in 1901 at Friedrich-Wilhelmshafen, New Guinea, and is deposited in the Hungarian National Museum.

Pseudocryptopone zwaluwenburgi, new species

Figure 5, *a* to *c*

Worker.—Length, 2–2.3 mm.

Head suboblong, nearly one-third longer than broad, with straight, subparallel sides, rounded anterior and posterior corners and distinctly concave posterior border. Eyes absent. Mandibles with three small apical teeth, the basal half of the masticatory border straight, evenly and microscopically pectinate. Clypeus bluntly subcarinate, with broadly and evenly rounded anterior border. Frontal carinae of the

usual shape; frontal groove reaching to the middle of the head. Antennae stout; scapes distinctly thickened distally, reaching a distance equal to their greatest diameter from the posterior border of the head; club of funiculus distinctly 5-jointed; joints 2–6 narrow and transverse. Pronotum less than twice as long as broad, somewhat depressed above; mesonotum transversely elliptical, very slightly more convex than the mesonotum; mesoëpinotal suture quite as distinct as the promesonotal. Epinotum from above less than twice as long as broad, with nearly parallel sides, its dorsal surface rounded laterally and posteriorly; the base and declivity straight in profile, the former horizontal, the latter rather steep, the angle between rounded. Petiole as broad as long, from above trapezoidal, narrowed anteriorly and truncate behind; in profile as long as high, the node narrowed above, with straight, sloping,

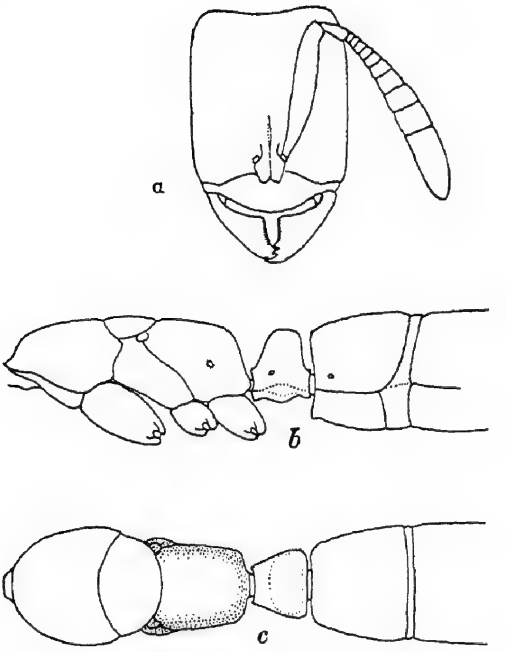

Fig. 5. *Pseudocryptopone zwaluwenburgi*, new species.
a, head of worker, dorsal view; *b*, thorax and pedicel, lateral view; *c*, same, dorsal view.

subequal anterior and posterior surfaces and horizontal, laterally rounded superior surface, which is twice as broad as long. Postpetiole narrow, trapezoidal, as long as broad. Gaster very long and slender, its first and second segments subequal, about one and one-half times as broad as long. Sting very large. Legs rather long, moderately stout.

Mandibles, epinotum, abdomen and legs shining, very finely punctate; dorsal surface of head, promesonotum and pleurae more opaque and more densely punctate; the punctures of the head coarser and deeper.

Pubescence yellowish, very short and fine, dense and appressed, but not concealing the surface, most conspicuous on the head; hairs erect, fine and short, sparse and

rather generally distributed but more numerous on the abdomen, longer on the clypeus.

Brownish yellow; appendages not paler than the body; anterior border of clypeus and masticatory border of mandibles red.

Described from eleven specimens taken by Mr. R. H. Van Zwaluwenburg at Waimalo, Waialua, and Waipio on Oahu Island, and also on Maui Island, Hawaii. They were living some inches below the surface in the soil of both cultivated and fallow sugar-cane fields.

Pseudocryptopone swezeyi, new species

Figure 6, *a* to *d*

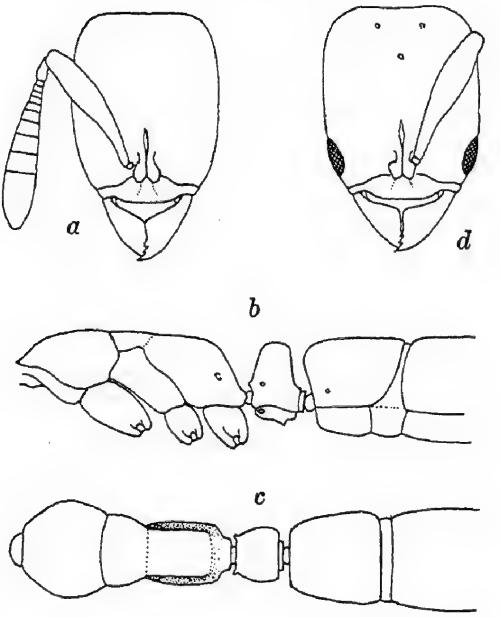

Fig. 6. *Pseudocryptopone swezeyi*, new species.

a, head of worker, dorsal view; *b*, thorax and pedicel, lateral view; *c*, same, dorsal view; *d*, head of female, dorsal view.

WORKER.—Length, 1.2–1.4 mm.

Head subrectangular, nearly one-third longer than broad and nearly as wide in front as behind, with feebly and evenly rounded sides and straight posterior border. Eyes absent. Mandibles with three small, very oblique apical teeth. Clypeus bluntly subcarinate, its anterior border nearly straight and transverse in the middle, sinuate on each side. Frontal carinae small, closely approximated ; frontal groove distinct, reaching nearly to the middle of the head. Antennal scapes distinctly incrassated and somewhat flattened distally, reaching to a distance less than their greatest diameter from the posterior border of the head; funiculi with all the joints, except the first and last, much broader than long, the club thick, indistinctly 5-jointed. Thorax narrow,

with straight, horizontal dorsal outline; pronotum, including the neck, nearly as long as broad, somewhat depressed dorsally; mesonotum rather broad, subtrapezoidal, with rounded sides; mesoëpinotal suture indistinct; epinotum about one and two-thirds times as long as broad, base straight with subparallel, submarginate sides, somewhat longer than the straight, sloping declivity. Petiole somewhat broader than long, broader behind than in front, with moderately convex sides and straight posterior border; in profile higher than long, narrowed above, straight anteriorly, above and posteriorly, the anterior surface distinctly convex from side to side, the posterior very flat, with marginate border. Postpetiole narrow, longer than broad, its nearly flat anterior surface projecting above and strongly inclined downward and backward. First gastric segment shorter than the petiole, the second and following segments very short. Sting small. Legs short and rather slender.

Shining; dorsal surface of head and thorax subopaque; mandibles very finely and sparsely punctate; head and antennal scapes densely but not sharply, thorax and petiole more sparsely and distinctly, postpetiole and first gastric segment coarsely and sparsely punctate.

Pilosity yellow; pubescence very fine and short, rather sparse on the head, thorax, petiole and legs, longer and denser on the postpetiole and gaster; hairs sparse and erect, distinct only on the clypeus, dorsal surface of petiole and terminal gastric segments.

Yellowish ferruginous; legs, antennal scapes, bases of funiculi and tip of gaster yellow; mandibular teeth and anterior edge of clypeus dark brown; posterior borders of gastric segments sometimes reddish.

FEMALE (deälated).—Length, 1.8–2 mm.

Head somewhat broader than that of the worker, with more broadly rounded posterior corners and straight, parallel sides. Eyes small, circular, flattened and hairy, situated about one-third their diameter from the anterior corners of the head. Ocelli widely separated. Thorax long, narrower than the head, flattened dorsally; pronotum as long as broad, gradually narrowed anteriorly; mesonotum small, semicircular; tegulae well-developed; epinotum broader than long, its base transversely oblong, nearly twice as broad as long. Petiole like that of the worker, but the node more compressed anteroposteriorly, so that its summit is three times as broad as long (only about one and one-half times as broad as long in the worker). Gaster more voluminous.

Sculpture, pilosity and color as in the worker. Wings, judging from their stumps, probably densely pubescent and infuscated.

Described from seven workers and four females taken by Mr. R. H. Van Zwaluwenburg near Honolulu, Hawaii, in the soil of cultivated and fallow sugar-cane fields.

This minute species is closely related to *Ps. tenuis* Emery and *mocsaryi* Szabó, but is readily distinguished by the characters mentioned in the key. It is dedicated to Mr. O. H. Swezey who has contributed so greatly to our knowledge of Hawaiian insects.

Pseudocryptopone incerta, new species

Figure 7, *a* to *d*

WORKER.—Length, 1.5 mm.

Head suboblong, one-fourth longer than broad, with nearly straight, subparallel sides and distinctly concave posterior border. Eyes present, minute, at about the anterior sixth of its sides. Mandibles with three small apical teeth; basal portion of masticatory border finely and indistinctly crenulate. Clypeus subcarinate, its anterior border produced in the middle, sinuate on the sides. Frontal carinae small, closely approximated, ciliated; frontal groove distinct as far back as the middle of the head. Antennal scapes reaching to its posterior sixth; clubs of funiculi thick, indistinctly 5-jointed, basal joints, except the first, short and transverse. Thorax in profile with nearly straight horizontal outline; promesonotal suture distinct, arcuate; meso-

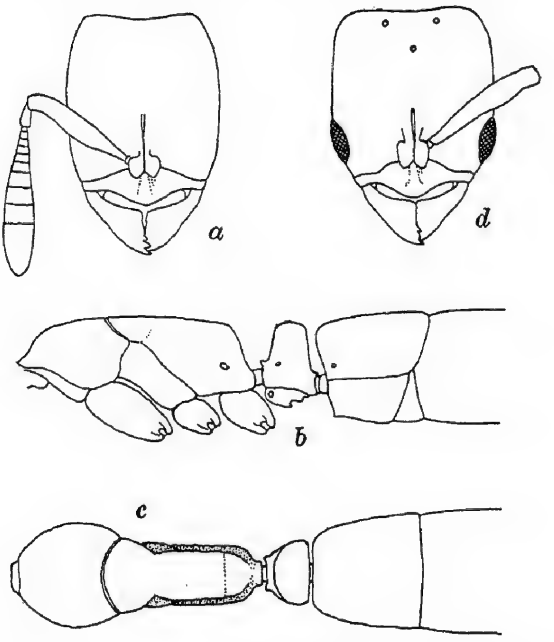

Fig. 7. *Pseudocryptopone incerta,* new species.

a, head of worker, dorsal view; *b*, thorax and pedicel, lateral view; *c*, same, dorsal view; *d*, head of female, dorsal view.

epinotal suture absent; base of epinotum parallel-sided, longer than the declivity which is straight and marginate laterally. Petiole decidedly higher than long, node somewhat narrowed above in profile, with straight anterior and posterior slopes, the superior border straight and horizontal; seen from above the petiole is broader than long and broader behind than in front, the node semicircular, its anterior surface regularly curved from side to side, its posterior surface flat. Postpetiole nearly as broad as long, its anterior surface strongly truncated and inclined downward and backward. First gastric segment nearly as long as and slightly broader than the postpetiole; remaining segments very small. Sting well-developed. Legs rather slender.

Shining; dorsal surface of head opaque; mandibles smooth, coarsely and very sparsely punctate; head very densely, thorax and abdomen somewhat more sparsely covered with coarse, sharp punctures.

Pilosity yellowish; pubescence very short, rather abundant and dense on the head, antennae and legs, much more dilute on the thorax, petiole and postpetiole; hairs rather long, confined to the clypeus and gaster, rather abundant on the latter, subappressed on its first segment.

Reddish brown or castaneous; gaster darker; antennae paler; mandibles, legs and tip of gaster brownish yellow.

FEMALE (deälated).—Length, 2 mm.

Head broader and more rectangular than in the worker, with straight, parallel sides and nearly straight posterior border. Eyes small, circular, flat, hairy, situated a distance equal to their diameter from the anterior corners of the clypeus. Ocelli rather large, widely separated. Thorax nearly as broad as the head, somewhat depressed dorsally; epinotum short, subcuboidal, nearly twice as broad as long, its base shorter than the abrupt declivity. Petiole broader than in the worker, with the node more compressed anteroposteriorly and its summit rounded. Postpetiole and gaster more voluminous.

Sculpture, pilosity, and color much as in the worker, but the thorax more opaque, with both the dorsum and pleurae more densely and sharply punctate. Dorsal surface of body somewhat darker brown; first gastric segment nearly black.

A single worker and female taken by Dr. H. Dammerman at Depok, Java. In habitus this species differs somewhat from the four other species of *Pseudocryptopone* and might be assigned to the genus *Ponera*.

SELENOPONE, new genus

WORKER.—Closely related to *Ponera;* small and rather stout. Head broad; mandibles large and triangular, their masticatory border with three apical teeth and with or without blunt basal denticles. Clypeus ecarinate, only feebly convex in the middle, with broadly rounded, entire anterior border. Eyes very minute, convex, without distinguishable facets, situated near the mandibular articulations. Frontal carinae small and closely approximated, as in *Ponera;* frontal groove distinct but rather short. Antennae stout, clubs thick, indistinctly 5-jointed. Thorax short, its dorsal outline evenly and feebly convex; promesonotal suture very distinct; mesoepinotal suture less developed or obsolete. Epinotum narrower than the promesonotum, not strongly compressed or laterally hollowed anteriorly. Petiole much larger and broader than in *Ponera,* broader than the epinotum, its node distinctly squamiform; seen from above semicircular or crescentic, convex anteriorly, straight or subconcave posteriorly; in profile high, straight or even somewhat concave anteriorly, straight posteriorly, with its superior surface inclined backward and downward. Postpetiole and gaster much as in *Ponera* but the terminal segments small and very short. Sting large and well-developed. Legs rather stout, metatarsi shorter than the tibiae; middle tibiae without bristles on their extensor surfaces.

GENOTYPE.—*Ponera selenophora* Emery.

Selenopone oreas, new species

Figure 8, *a* to *c*

WORKER.—Length, 1.8–2 mm.

Head subrectangular, without the mandibles scarcely longer than broad, very nearly as broad in front as behind, with feebly convex sides and rather deeply, arcuately excised occipital border. Mandibles large, flattened, with straight external borders, three well-developed apical teeth and the basal portion of the masticatory border very indistinctly crenulate. Eyes very minute, convex, without distinct facets, situated at the anterior sixth of the lateral borders. Clypeus short, slightly convex but not carinate in the middle, its anterior border broadly rounded in the middle.

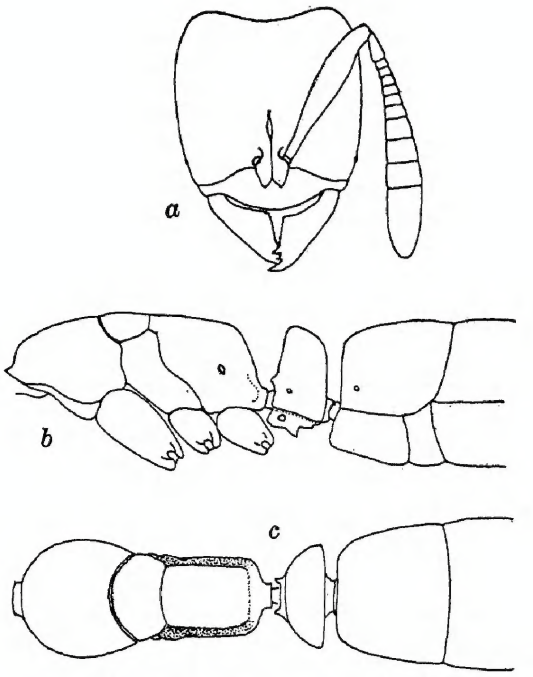

Fig. 8. *Selenopone oreas*, new species.

a, head of worker, dorsal view; *b*, thorax and pedicel, lateral view; *c*, same, dorsal view.

Frontal carinae very small, contiguous, ciliate; frontal groove extending back nearly to the middle of the head. Antennae stout, scapes reaching the occipital border of the head; funiculi with thickened, indistinctly 5-jointed clubs, joints 2–7 short and transverse. Thorax with feebly and evenly arcuate dorsal outline, epinotum distinctly subangulate, with straight base and declivity; promesonotal and mesoëpinotal sutures distinct, the former impressed, the latter less pronounced. Seen from above the pronotum is convex anteriorly and laterally, excluding the neck somewhat broader than long; mesonotum small, half as long as the pronotum and twice as broad as long; epinotum narrower, slightly broader behind than in front, its base one and one-half times as long as broad, with nearly parallel, submarginate borders, the declivity

steep, flat and subcircular, shorter than the base, laterally sharply marginate. Petiole decidedly broader than the epinotum, from above semicircular, evenly convex in front, straight behind, scale in profile higher than long, straight and perpendicular anteriorly and posteriorly, the superior surface somewhat more rounded, especially posteriorly, and sloping backward and downward; ventral lamella prominent, with strong median tooth and circular anterior fenestra. Postpetiole broader than long, strongly truncated anteriorly and somewhat concave at the high insertion of the petiole. Gaster short, its first segment very similar to the postpetiole, remaining segments small and very short; sting long and stout. Legs rather long, femora and tibiae stout.

Mandibles very smooth and shining, scarcely punctate; head opaque, covered with dense, rather fine, pubigerous punctures; clypeus more shining; thorax, postpetiole and first gastric segment distinctly shining, punctate, but the punctures on the thorax finer than on the head, those on the postpetiole and gaster coarser and on all these regions decidedly sparser than on the head; declivity of epinotum and petiole very smooth and shining, the latter with a few small, scattered punctures. Antennae and legs subopaque, finely and densely punctulate, appearing somewhat scabrous.

Pilosity and pubescence whitish, the pubescence short and rather abundant on the head and appendages, not strongly appressed; on the petiolar corners, postpetiole and gaster lengthening to form rather long, oblique or reclinate hairs.

Thorax, petiole and postpetiole castaneous brown; head and gaster darker, more blackish; mandibles, clypeus, frontal carinae, antennae, legs and terminal gastric segments brownish yellow.

Described from four specimens taken by Dr. F. X. Williams, at an altitude of 4000 feet on the Cuernos Mts., near Dumaguete, Negros Oriental, Philippines.

This species is closely related to Emery's two Papuan species of which I append the translated descriptions. *S. oreas* can be distinguished from *selenophora* by its smaller size, different mandibular dentition and differently shaped petiole and epinotum; from *clavicornis* by its somewhat paler coloration, developed pilosity, more shining thorax and abdomen, longer antennal scapes, distinct mesoëpinotal suture and very different epinotum.

Selenopone selenophora (Emery)

Ponera selenophora Emery, 1900, Termeszet. Füzetek, XXIII, p. 317, Pl. VIII, figs. 4–6, ♀; 1911, Ponerinae, in 'Genera Insect.,' p. 92, ♀.

"Worker.—Fuscous black; mandibles, antennae, legs and anus red, head and thorax opaque, epinotum and abdomen shining, with abundant yellow pubescence, sparsely pilose, hairs longer toward the tip of the abdomen. Head without the mandibles slightly longer than broad, its sides moderately arcuate, occiput broadly, arcuately, not deeply excavated, densely punctate, the punctures pubigerous, the spaces between them and their centers opaque. Mandibles shining, sparsely punctate, 8–9-toothed, the anterior teeth larger, acute. Clypeus

nearly straight anteriorly, not carinate; disc of frontal carinae small, ciliate, broadly sulcate in the middle; frontal groove not reaching to the middle of the head. Eyes very minute, not distinctly composite. Antennal scape barely reaching the occipital border; funiculus gradually incrassated towards its tip; club indistinctly 5–jointed, all the joints except the first and last broader than long. Thorax stout, dorsum feebly arcuate, not impressed, basal and declivous surfaces of epinotum meeting at a very rounded angle; promesonotal suture distinct; mesoëpinotal suture feebly indicated or obsolete; mesonotum transverse, half as long as the pronotum, both, including the pleurae and all the sterna, punctate, slightly less opaque than the head above; epinotum shining, with separated piligerous punctures, slightly narrower than the pronotum, with concave sides, the declivous surface broad, transversely excavated for the reception of the petiolar scale, its sides marginate. Petiolar scale seen from above semilunar, or semicircular, convex anteriorly, nearly straight or transversely subconcave posteriorly, seen from the side nearly straight anteriorly or slightly concave, the posterior passing arcuately into the superior surface. Sculpture of the whole abdomen like that of the epinotum. Length 2.5–2.75 mm.

"Notable on account of the structure of the petiole and very minute eyes, in which separate facets are not with certainty discernible.

"Lemien (New Guinea), collected in siftings (L. Bíró)."

Selenopone clavicornis (Emery)

Emery, 1900, Termeszet. Füzetek, XXIII, p. 317, Pl. viii, figs. 7–8, ♀; 1911, Ponerinae, in 'Genera Insect.,' p. 90, ♀.

"Worker.—Black; mandibles, antennae, legs and anus reddish; more densely sculptured with pubigerous punctures, the spaces between which on the head, thorax and petiole are opaque throughout; gaster less opaque; erect hairs absent even on the terminal abdominal segments. Head longer than broad, with feebly arcuate sides; eyes very minute, close to the mandibular articulation; clypeus moderately convex, its border broadly arcuate; mandibles shining, sparsely punctate, masticatory border anteriorly with three larger teeth, scarcely crenulate posteriorly. Antennal scape when folded back not reaching the occipital border; funiculi thick, all the joints except the first and last transverse, namely, 2–6 very short, 7 larger and together with the four last joints forming a 5–jointed club. Thoracic dorsum nearly straight, promesonotal suture distinct, mesoëpinotal suture obsolete: declivous surface of epinotum shining, abrupt, concave, acutely marginate on the sides. the angle be-

tween it and the base rounded; mesonotum and epinotum a little narrower than the pronotum. Petiolar scale seen from the side nearly straight anteriorly and posteriorly, above obliquely truncated, declivous posteriorly; seen from above semicircular or semilunar, that is convex anteriorly, subconcave posteriorly. Postpetiolar segment truncate anteriorly. Length 2 mm.

"Similar to the preceding but smaller, more opaque and with a differently shaped petiole.

"Friedrich-Wilhelmshafen (New Guinea, L. Biró)."